White Paper

Developing Organics Standards for Molluscan Shellfish

Preface:

The development of organics standards for molluscan shellfish has been problematic within the context of general aquaculture practices. Several topics which need to be considered differ significantly between these two distinct operating systems. The Aquaculture Working Group was unable, within the allotted time frame, to develop standards that addressed issues specific to shellfish. Shellfish aquaculture could comply with those sections in the Final Report that are relevant, but there are gaps that must be addressed specific to shellfish farming and areas of the report that have no bearing on the industry at all. This White Paper is intended to provide the NOSB with relevant information not contained in the Final Report, in the hope that organics standards for shellfish will be developed.

Background: How are shellfish farmed?

Molluscan shellfish farming is very unlike other fisheries operations in that mollusks tend to be stationary creatures. The practices employed by shellfish farmers and harvesters is in many ways more akin to vegetable crop production than to wild or aquaculture fisheries. Farmers plant or set oyster, clam, mussel, scallop or geoduck seed in a designated area, watch over their crops during grow out (18 months to 5 years, depending on the species, location and environmental variables) and then harvest their crops much as a farmer would harvest corn or soybeans. In some instances, shellfish may be moved at some point during maturation to another carefully demarcated area to optimize growth.

Shellfish planted for grow-out graze strictly on the microalgae found naturally in the water column. Shellfish differ from both finfish and vegetable crops in that fertilizers and feed are not used and antibiotics, vaccines, biologics and growth hormones are not used. The rare exception to this could occur occasionally in the hatchery (larval) phase when antibiotics may be used.

Hatchery Operations:

Increasingly growers are utilizing hatchery raised seed, rather than relying on wild-caught seed. In this case, antibiotics may, *on rare occasion*, be used in the earliest stages of larval development. This would be in all cases prior to what has been referred to in the Working Group as "spat," which has been defined as seed that has reached 10 mm. By this time, shellfish seed has been set out for growth, and the recommendations of the Working Group is that this is the point in time when the "organic's clock" would start ticking. In either event, the National Organics Program (NOP) Final Rule, Section 205.204 (a) (1) provides that *"Non-organically produced, untreated seeds and planting stock may be used to produce an organic crop when an equivalent organically produced variety is not commercially available."*

off-limits, or purchased from non-commercial or foreign purveyors who lack NSSP certification and harvest from contaminated areas.

The Principles of Organic Agriculture as it Applies to Shellfish Farming:
The case for developing organics standards for shellfish is well founded on the principles as specified in the National Organics Food Production Act (OFPA) of 1990, the National Organics Program (NOP) Final Rule, the Federation of European Aquaculture Producers' Code of Conduct, the International Federation of Organic Agriculture Movements (IFOAM) and James Riddle's paper on "Organic Aquaculture – Meeting Fundamental Organic Certification Requirements: Similarities and Differences Between Terrestrial and Aquatic Organisms."

OFPA:
The Organic Food Production Act stipulates that to be certified organic, the farmed area must be managed and monitored within clearly marked boundaries. The OFPA also provides specifically for management of wild crops, (Section 6513) requiring that the areas: 1)be designated as to where crops will be gathered or harvested; 2)have a three year history showing no prohibited substances have been applied; 3)have a plan for harvesting the crops to guard against environmental destruction and assure sustainability in the growth and production of the wild crop.

The OFPA provides that the Board shall advise the Secretary concerning the testing of organically produced agricultural products for residues. Under General Requirements in OFPA, there is also a provision for requiring periodic residue testing.

NOP Final Rule: Organic Production and Handling Standards:
While the language under "Soil fertility and crop management practice standard" is written specific to terrestrial agriculture, similar principles of operations can be articulated specific to the benthic and epibenthic communities of the marine environment. The guiding principle behind this section is akin to the Environmental Codes of Practice currently being drafted by enclaves of shellfish growers across the country, the essence of which is to utilize cultivation methods which maintain or improve the physical, chemical and biological conditions of the marine ecosystem.

Code of Conduct for the Federation of European Aquaculture Producers (FEAP):
The tenets of these codes, which is to operate aquaculture operations in a sustainable manner that avoids negative impacts on the environment, parallels the Environmental Codes of Practice currently being developed and implemented by the shellfish industry.

IFOAM Basic Standards 6.8.1:
The IFOAM states that "Aquafeeds shall generally contain 100% certified organic components, or wild aquatic feed resources. When wild fish are used, the Code of Conduct for Responsible Fisheries (FAO, 1995) shall be followed." If this is an accepted standard for a large segment of the international organics community, is there a scientifically sound basis for disallowing a similar standard in the U.S.? Is it advisable to

Organic standards are predicated on farming management principles, not safety issues. This fact notwithstanding, the NSSP provides a very reliable means for assuring consumer safety that statistically has proven more effective than consumer safety systems for other proteins such as chicken and beef. Furthermore, safety issues have not prevented other livestock from qualification for organic certification so this concern should not hamper shellfish certification.

The argument made by some that the Organics label should confer a higher level of safety and quality may not be consistent with the stated purpose and principles of an organic standards program, but it is interesting to note that IF shellfish were labeled organic, that would in fact be an assurance that they were sourced from a reasonably reliable commercial producer, as opposed to purchased from a shellfish pirate out of the back of his truck on a 95 degree day.

4. Open water molluscan shellfish aquaculture is akin to "wild" stock issues, therefore we must wait until a decision on the "wild" issue is determined before moving forward.

The open water debate does suggest a kinship with "wild" raised fish, but given the stationary nature of mollusks and the fact that growing areas have determined boundaries which are regularly monitored and managed, the similarities with terrestrial agriculture is a closer parallel.

The Underlying Philosophy:
Fred Kirschenmann has posed some critical questions in his paper "Philosophy Underlying Certification of Wild Harvested Organisms Used in Aquaculture" that was presented at the ISEES Organics Aquaculture Conference in Minneapolis in June 2000. These questions bear close examination as we determine how to develop standards for aquaculture, and may require a re-examination of some of the assumptions underlying terrestrial agriculture.

"Organic agriculture did not emerge as an effort to create these little enclaves of purity within a degraded environment," writes Kirschenmann. *"They emerged as a way to do agriculture."* He urges us to not get locked into a paradigm of creating enclaves of purity. How do we create whole systems that are ecologically vibrant with ecological integrity? How do we identify and restore healthy ecological neighborhoods?

These imperatives are instrinsic to growing shellfish. Commercial production requires a healthy watershed. As a result, growers have a long history as stewards of the ecosystems they depend upon and in many ways are a prototype – a kind of "poster child" - for sustainable and organic agricultural systems.

Ideally, as New Zealand mussel grower Bill Floyd articulates: *"If huge volumes of food production met the organic philosophy – isn't that a good thing? Is an organic standard a failure if it doesn't create a price premium? Organics is about safeguarding Gaia...If an industry is intrinsically okay and it could be called organic without too many*

A Final Note For Consideration:
Borrowing from the concept of land-bank mitigation and the use of "pollution credits," consider the following:

One of the contentious issues surrounding finfish aquaculture in open water systems is the management of nutrients (waste). A simple solution is at hand. Require shellfish beds to be set beside net pens. The shellfish will feed on the nutrients expelled by organically produced finfish which means they will be feeding on what could reasonably be construed as organic nutrients within a managed controlled system. The shellfish get fat and happy on these organic nutrients while neutralizing the effects of the finfish waste, purifying the surrounding water and eliminating the potentially damaging effects of over-nutrification. A win-win for everyone. It's the aquatic model of the "partner farms" concept postulated in the Netherlands as ideal organics management.

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